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A New Anophthalmic *Trechiana* (Coleoptera, Trechini)
from Copper Mines in Western Honshu, Japan¹⁾

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For several years, adits of mines have rapidly attracted attention of Japanese biospeologists. This is mainly because of the realization that they frequently harbour anophthalmic animals despite their recency and therefore, supply an important clue for tracing the origin of troglobionts. They also afford to fill blanks in our knowledge of the distribution of subterranean animals. For instance, a sizable trechine fauna has already been known from Japanese caves, but there still remain wide areas where no anophthalmic trechines have been met with due to the lack of natural cavities. The eastern part of the Chûgoku Hills is an example of this, having previously yielded only a small number of anophthalmic species, most of which are rare endogeans.

Recent investigations of abandoned mines are bringing forth new forms from this area, in which the distributional range of the group of *Trechiana ohshimai* meets that of the group of *T. oni*. I have already reported a new species of the former group from a manganese mine in the Minoo Hills (cf. UENO, 1976), and in this paper, I am going to describe one of the latter group from two copper mines at the central part of Hyôgo Prefecture. With the discovery of this new species, a wide gap in the distribution of the species-group, between the known localities of *T. fujitai* and *T. kosugei*, is spanned to a certain extent.

Before going further, I wish to express my deep appreciation to Mr. Yoshiaki NISHIKAWA, an arachnologist, whose enthusiastic investigations have greatly contributed to clarifying the fauna of artificial cavities in West Japan. Hearty thanks are also due to Messrs. Kojiro KATSURA, Yoshinobu MORIMOTO and Masaji UOZUMI for their kind aid in undertaking uncomfortable collectings in abandoned mines.

Trechiana (s. str.) *crassilobatus* S. UENO, sp. nov.

(Figs. 1-3)

Length: 5.30-6.15 mm (from apical margin of clypeus to apices of elytra).

Closely allied to *T. fujitai* S. UENO (1969, p. 779, fig. 1) of Funakoshi-yama and cannot be confidently distinguished from that species by external characters alone, but the elytra are less pointed at apices and have deeper striae which are distinctly crenulate.

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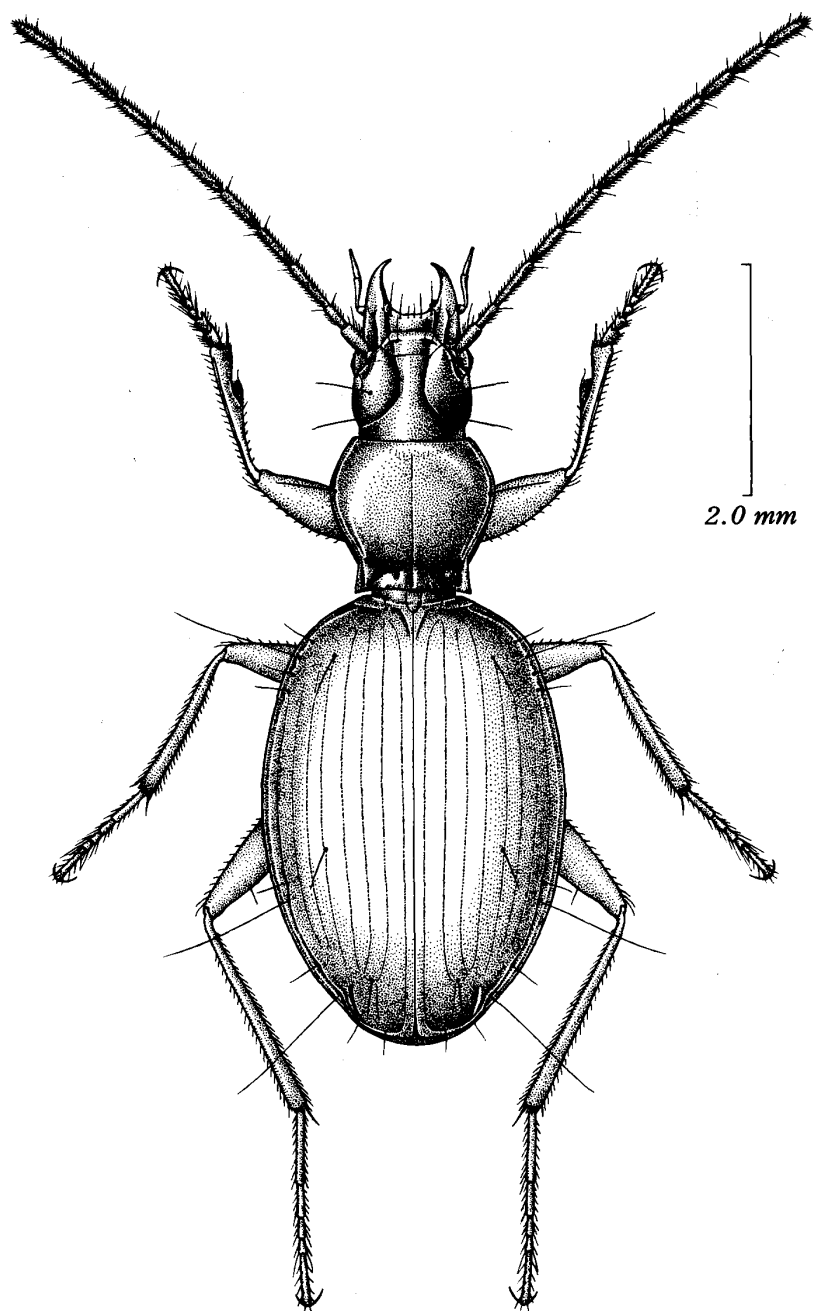
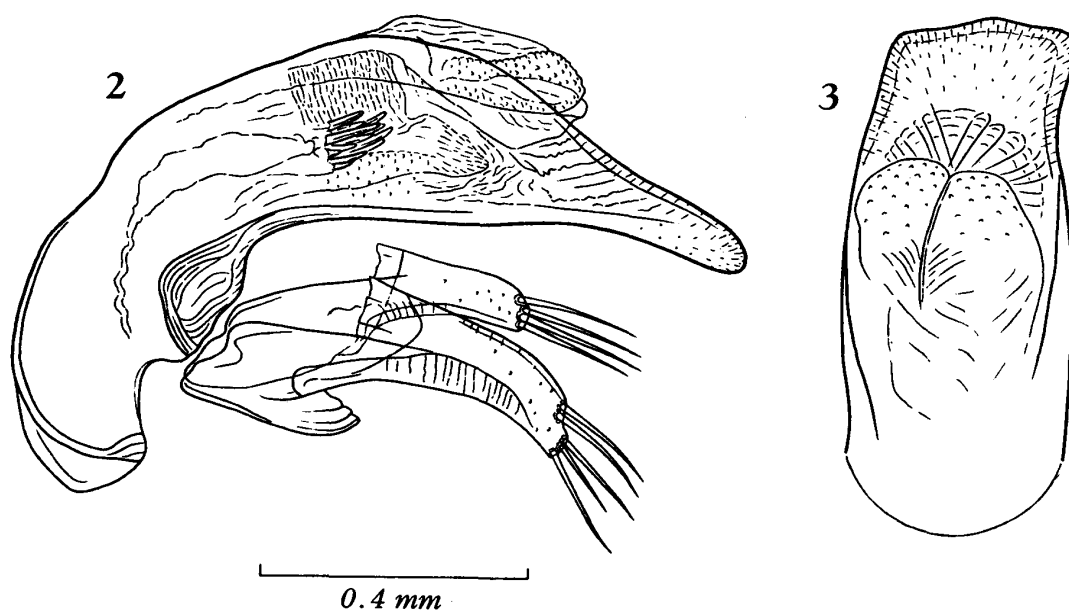


Fig. 1. *Trechiana* (s. str.) *crassilobatus* S. UÉNO, sp. nov., ♂, of Kawakami-kô Mine in Ôkawachi-chô.

Strikingly different from *T. fujitai* in the shape of aedeagal apical lobe, which is thick, square and spatulate; also different in that the basal part of aedeagus is strongly bent towards the ventral side and is deeply emarginate at the sides of basal orifice.

Colour as in *T. fujitai*, but the scape is darker and the iridescence on elytra is weaker. Head perfectly similar to that of *T. fujitai*. Antennae somewhat shorter,

usually reaching apical four-ninths of elytra in ♂ and the middle of elytra in ♀. Pronotum as in *T. fujitai*, likewise lacking in the pair of postangular setae; sides usually more strongly and less evenly arcuate in front, and more widely divergent towards hind angles behind the ante-basal sinuation. Elytra a little smaller on an average than in *T. fujitai*, with the apices less pointed and more widely rounded; striae deeper, distinctly impressed even at the side, and more obviously crenulate; scutellar striole longer and more sharply impressed; apical striole more strongly curved; stria 5 with two setiferous dorsal pores at $1/10$ – $1/8$ from base and usually somewhat behind middle; in the allotype, an extra dorsal pore present on left elytron before the posterior one; preapical pore as in *T. fujitai*. The standard ratios of body parts are as follows: PW/HW 1.36–1.49 (M 1.43), PW/PL 1.06–1.12 (M 1.09), PW/PA 1.41–1.55 (M 1.47), PW/PB 1.39–1.54 (M 1.46), PB/PA 0.94–1.05 (M 1.00), EW/PW 1.67–1.80 (M 1.74), EL/EW 1.46–1.55 (M 1.50).²⁾ Legs as in *T. fujitai*, though the tarsi are a little less slender.



Figs. 2–3. *Trechiana* (s. str.) *crassilobatus* S. UENO, sp. nov., of Kawakami-kô Mine in Ôkawa-chi-chô. — 2. Male genitalia, left lateral view. — 3. Apical part of aedeagus, dorsal view.

Male genital organ very heavily sclerotized, fundamentally similar to that of *T. fujitai* though markedly differing from it in the shape of aedeagal apical lobe. Aedeagus about three-tenths as long as elytra, robust, and convex on the dorsal side; basal part fairly elongate and strongly bent towards the ventral side, bearing a small hyaline sagittal aileron; basal orifice relatively small, with the sides deeply emarginate; apical lobe very heavily sclerotized, thick, unusually broad, parallel-sided, slightly curved to

2) For abbreviations, refer to other papers of mine.

the left, and widely truncated at the extremity; viewed laterally, apical lobe thick, straightly produced, and blunt at the extremity. Inner sac as in *T. fujitai*, though the group of sclerotized teeth is smaller. Styles large, broad and relatively short, left style being much larger than the right, each usually provided with four setae at apex, though one of the two styles sometimes bears either five or only three apical setae.

Type-series. Holotype: ♂, allotype: ♀ (Kawakami-kô Mine, 30-XI-1976, S. UÉNO & M. UOZUMI leg.). Paratypes: 7 ♂♂, 3 ♀♀ (Kawakami-kô Mine, 30-XI-1976, S. UÉNO, M. UOZUMI & Y. MORIMOTO leg.); 4 ♂♂, 1 ♀ (nameless mine at Hatagiri, 10-X-1976, Y. NISHIKAWA & K. KATSURA leg.); 3 ♂♂ (nameless mine at Hatagiri, 30-XI-1976, S. UÉNO, M. UOZUMI & Y. MORIMOTO leg.).

All the specimens of the type-series are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Localities. Kawakami-kô Mine (type-locality!), and a nameless abandoned mine at Hatagiri, both at Kawakami of Ôkawachi-chô in Hyôgo Prefecture, western Honshu, Japan.

Notes. It is doubtless that this new species has been derived from the same ancestor as *T. fujitai*. This is suggested by both the external features, which are mostly the same between the two, and the fundamental structure of male genitalia. Were it not for the striking difference in the shape of aedeagal apical lobe, these two forms could be regarded as two geographical races of a single widespread species. However, the singularly formed apical part of aedeagus in the present species is unique among all the trechine beetles hitherto known in the Far East, and this peculiarity no doubt affords the recognition of its specific independency.

The two known localities of *T. crassilobatus* are abandoned copper mines lying in the northeastern ridge of To-no-miné Hill, about 8 km to the west of the old mining town Ikuno and about 26 km to ENE of Ruri-dera, the type-locality of *T. fujitai*. They are about 1 km distant from each other and lie on different levels. The longer and more complicated of the two is Kawakami-kô Mine, the type-locality, which was dug into diorite at an elevation of about 550 m. In this mine, the trechine was found only near the innermost of the adit, several hundred metres removed from the only usable entrance. The beetle dwelled under or around rotten logs formerly used for mine posts. The other locality, a nameless adit at Hatagiri, seems to have been formed by a prospecting. It was dug into rhyolite at an elevation of about 760 m, but must have been abandoned shortly. The trechine was met with near the innermost of the adit, which was just within the limit of the dark zone.

There are slight differences between the two known populations of *T. crassilobatus*; Hatagiri specimens are slightly larger on an average than Kawakami-kô ones and have the pronotal basal area more widely dilated posteriad. The PB/PA value is 1.01–1.05 (M 1.03) in the former against 0.94–1.01 (M 0.98) in the latter. However, they agree with each other in all the other characteristics, including the peculiar structure of male genitalia.

References

- UÉNO, S.-I., 1969. A new endogean *Trechiana* (Coleoptera, Trechinae) from western Honshu, Japan. *Bull. Natn. Sci. Mus., Tokyo*, **12**: 779–782.
- 1976. A new anophthalmic *Trechiana* (Coleoptera, Trechinae) from the Minoo Hills, Central Japan. *J. speleol. Soc. Japan*, **1**: 1–7.